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EXAMINER	
SALL, EL HADJI MALICK	

ART UNIT	PAPER NUMBER
2157	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/693,632	ALON ET AL.	
	Examiner	Art Unit	
	EL HADJI M. SALL	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the amendment filed on November 5, 2007 . Claims 1-25 are pending. Claims 1, 11 and 15 are amended. Claims 17-25 are added. Claims 1-25 represent Method and system for validating logical end-to-end access paths in storage area networks.

2. ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 and 11 provide for the use of "validating" but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 1 and 11 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

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3. Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwatani U.S. 7,103,653 in view of Beavin et al. U.S. 5,940,819.

Iwatani teaches the invention substantially as claimed including Storage area network management system, method, and computer-readable medium (see abstract).

As to claims 1, 11 and 15, Iwatani teaches a process for validating a state of a storage area network (SAN), a state change of a SAN, and a SAN validation manager, comprising:

defining a SAN access path policy representative of SAN logical access paths, said SAN logical access paths defining end-to-end access relationship between an application on a server and data LUNs stored on storage devices in the SAN (column 3, lines 17-35),

collecting configuration information from devices of the SAN, standardizing formats of the configuration information and reconciling any conflicts (column 9, lines 19-34),

processing the collected configuration information to identify the SAN logical access paths, and computing the associated attribute values (column 9, lines 35—41),

comparing the identified SAN logical access paths and computed attribute values with the SAN access path policy to identify any logical path discrepancies or violations (column 9, lines 42-52; column 17, lines 17-19).

Iwatani fails to teach explicitly logical access paths attributes.

Beavin teaches user specification of query access paths in a relational database management system. Beavin teaches logical access paths attributes (column 5, lines 6-8; abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Iwatani in view of Beavin to provide having for the logical access paths an associated set of logical access path attributes consisting at least one of a number of a number of hops within a valid logical access path, a level of end-to-end redundancy for a valid logical access path, and a number of allocated ports for a valid logical access path. One would be motivated to do so to allow a sequence of frames each directly accessible from its predecessor.

As to claim 2, Iwatani teaches the process of claim 1, and further including identifying a logical access path violation if at least one identified SAN logical access path is in disagreement with the SAN access path policy (column 9, lines 36-41).

As to claim 3, Iwatani teaches the process of claim 1, and further including defining a SAN notification policy for notifying a user about SAN logical access path violations (column 9, lines 42-46).

As to claim 4, Iwatani teaches the process of claim 3, wherein notifying a user includes sending a message to the user with violation information, said message selected from the group consisting of email, graphic text and SNMP messages (figure 8).

As to claim 5, Iwatani teaches the process of claim 1, and further including identifying partial logical access paths, and comparing logical access path values of the partial path with the SAN logical access path policy (column 9, lines 42-52; column 17, lines 17-19).

As to claim 6, Iwatani teaches the process of claim 1, wherein said configuration information includes device properties selected from the group consisting of server ID, server port configuration, switch port configuration, switch ID, switch IP and domain ID, grouping of devices, zoning of devices, storage device ID, LUNs of storage

devices, and LUN masks (column 9, line 19-22).

As to claim 7, Iwatani teaches the process of claim 1, wherein a logical access path attribute comprises an attribute selected from the group consisting of level of redundancy, type of redundancy, number of hops, number of allocated ports, bandwidth, component
interoperability, proximity constraints, and type of component authentication .

As to claim 8, Iwatani teaches the process of claim 1, and further comprising user-defined grouping of at least two logical access paths that share at least one of the logical path attribute value or are within a range of predefined logical path attribute Values (figure 2).

As to claim 9, Iwatani teaches the process of claim 1, wherein collecting configuration information includes polling a SAN device API, simulating a CLI session with a SAN device, communicating with a SAN device using a CIM or SNMP protocol, or a combination thereof (column 9, lines 19-22).

As to claim 10, Iwatani teaches the process of claim 1, and further comprising validating a change state event of the SAN by collecting SAN event description information, and processing the SAN event description information to identify SAN

logical access paths that have attribute values that do not comply with the SAN access path policy, thereby indicating a changed state of the SAN (column 14, lines 12-25).

As to claim 12, Iwatani teaches the process of claim 11, and further defining a SAN change plan and comparing the SAN event description information with the SAN change plan (column 14, lines 12-25; column 9, lines 42-52).

As to claim 13, Iwatani teaches the process of claim 11, wherein the SAN change event is selected from the group consisting of an erroneous change in a SAN device configuration, a planned change in a SAN device configuration and a device failure (column 14, lines 12-25).

As to claim 14, Iwatani teaches the process of claim 11, wherein the SAN event description is obtained by at least one of polling, trapping after an event occurs, by a direct administrator input, by an input from a provisioning system about an intended change, by intercepting a change command before an event occurs (column 9, lines 42-52; column 17, lines 17-19).

As to claim 16, Iwatani teaches the SAN manager of claim 15, further comprising a change engine that collects SAN event description information, and processes the SAN event information to identify SAN logical access paths that have attribute values that do not comply with the SAN access path policy, thereby indicating a

changed state of the SAN (column 14, lines 12-25).

5. Claims 17-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwatani U.S. 7,103,653 in view of Beavin et al. U.S. 5,940,819, further in view of Dobbins et al. U.S. 5,825,772.

As to claims 17-25, Iwatani teaches the process of claims 1, 11 and 15.

Iwatani fails to teach explicitly graph representation for the network topology.

However, Dobbins teaches distributed connection-oriented services for switched communications networks. Dobbins teaches graph representation for the network topology (column 3, lines 48-51).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Iwatani in view of Dobbins to provide wherein processing the collected configuration information to identify the SAN logical access paths and computing the associated access path attribute values involves constructing an abstract graph representation of the network topology such that each node in the graph represents a device, and each edge represents an information flow capability between two devices, wherein the information flow capability is determined by a physical communication link between the two devices and logical configuration settings on the two devices, wherein identifying the SAN logical access paths and computing the associated attribute values further involves analyzing the network topology of the constructed graph, wherein analyzing the topology comprises enumerating sequences

of edges from nodes representing hosts to nodes representing data on storage devices and characterizing each node and each edge in terms of the logical configuration setting, wherein determining the attributes further involves
analyzing the identified sequences of edges in the constructed graph, enumerating a plurality of distinct logical access paths leading from a first node representing a host to a second node representing data on a storage device, and analyzing at least one of the level of end-to-end redundancy, the number of hops, a level of end-to-end redundancy, and the number of allocated ports of each of the logical access paths, wherein the first node and the second node are different. One would be motivated to do so to allow enables an access switch receiving a data packet to determine a complete path from a source end system to a destination end system (abstract).

6. Conclusion

Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention

Any inquiry concerning this communication or earlier communications from the examiner should be directed to El Hadji M Sall whose telephone number is 571-272-4010. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/El Hadji M Sall/

Examiner, Art Unit 2157

/Ario Etienne/

Supervisory Patent Examiner, Art Unit 2157